NSTAR ELECTRIC
One NSTAR Way
Westwood, Massachusetts 02090

January 18, 2012

Mr. Dean Charter
Town of Acton
Municipal Properties & Conservation Depts.
472 Main St.
Acton, MA 01720

RE: NSTAR Vegetation Management Program, Utility Pruning, Circuit(s) 416-H4, 416-H8

Dear Mr. Charter,

As a way of improving electric service reliability, we will be performing vegetation maintenance on Circuits 416-H4, 416-H8 in the town of Acton for a total mileage of approximately 39.7 miles**.** Tree branches are pruned for necessary clearance to help maintain the safety and reliability of the electric system and health of the trees impacting the system. NSTAR is working closely with our tree contractors to assist in pruning the circuit(s) to the NSTAR Distribution Tree Pruning Policy specifications.

Due to the storm events of 2011 and subsequent investigations, NSTAR has developed a new vegetation line clearance specification for 2012 that falls between our type one minimum specification and type two specifications. This effort is primarily to harden our infrastructure in order to provide reliable electrical service during inclement weather events. It also provides a safer workplace for linemen and arborists tasked with restoring power during severe storms and will shorten the time of restoration of electrical service to homes and businesses.

Our current minimum type one specification is 8x8x12 feet of air space from the uppermost and/or outermost primary conductor. This is 8 feet below and to each side with 12 feet of clearance above the conductors. The new specification is 10x10x15 feet noted as type 1**A**. This takes into consideration the ANSI Z133.1-2006 standard 4.2.6 of a minimum of 10 feet electrical approach distance for non qualified arborists or any individual. The 15 foot clearance above enhances clearance 3 more feet above conductors where ice and snow laden branches frequently bend or break into the distribution network.

This enhanced specification is an aesthetic compromise to the 25 foot overhead clearance dictated in type 2. I urge you to authorize this new clearance for your town. During this reclamation of airspace there will likely be some concern presented by citizens. Once this airspace is opened, subsequent cycle pruning, approximately every four years will be minimally intrusive moving forward. Typically the later work will be of a more routine nature and mainly consist of the pruning off of small four year old water sprouts growing back into the newly available sunlight.

To enhance reliability at key locations on the circuit, I will be prescribing additional pruning for line clearance to eliminate/reduce conifer and other unacceptable limb overhang. Line clearance contractors are obligated to adhere to NSTAR's Electric Distribution Vegetation Management Plan Procedure.

In the event our contractor is unable to adhere to the specifications, NSTAR's arborists will evaluate the site and take proper steps to insure proper clearance. Contractors may return to the circuit at their own expense to achieve clearances if clearance specifications are not met.

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Contractor Lucas tree will be performing the work on 416-H4 and we hope to begin 1/30/2012. Asplundh tree has been awarded the work on 416-H8 with no tentative start date as of yet.

Please e-mail or call me at 781-441- 3837 to arrange a meeting to review this work and discuss this effort.

Respectfully,

Christopher Fallon
Senior Arborist
NSTAR

Attachments:
Circuit maps 416-H4, 416-H8
Distribution vegetation management plan, yearly operational plan (DVMP)
,

Electric Distribution Vegetation Management Standards

Approvals:

NSTAR **_David Polson 11/16/09**_____
Name: David Polson
Title: Manager – Vegetation Management

General

The Distribution Pruning Policy is intended to provide pruning contractors with guidelines for performing work acceptable to the NSTAR Company, including proper pruning techniques, work progress reporting and time reporting.

The Policy also documents general management procedures for dealing with the various aspects of Pruning Program Control.

The Policy pertains to both maintenance pruning, which is done on an ongoing cyclic basis of approximately three to six years and to "new work" pruning.

Note: Company representative or delegate as referred to in this policy shall be understood to mean those individuals normally assigned to monitor tree crew activities in a given district or area within a district.

Guidelines For Tree Pruning And Removal

1. Provisions of the latest revisions to ANSI A-300 American National Standard for Tree Care Operations – Tree Shrub and Other Woody Plant Maintenance – Standard Practices shall be followed.
2. The desired amount of clearance necessary for conductors and electrical equipment should be such that high winds, rain, heavy snow, ice or a combination of any of them will not cause limbs or trees to come in contact with wires or other equipment. Effort should be made to remove any dead trees or limbs that in the event of their falling could contact conductors.

3. Clearance Guidelines – Refer to Exhibit 1.
    a. Road Screens – Where existing, shall be reduced depending on the ground clearance of the conductors above, using the drop crotch or "Natural Pruning" technique as shown in Exhibit 1.

    b. Generally Accepted Scientific Arboricultural Principles as Applied to line Clearance Work – For safe and healthy trees, the following recommendations are suggested:

c. Branches growing into a conductor should be removed by cutting back at a lateral or main side branch, rather than stub cutting. ("Natural Pruning")

d. All cuts shall be properly made, using undercutting to avoid damage by loosening or stripping of bark; the so-called "Branch Bark Collar" shall be left intact but no stubs shall remain. Cuts shall be smooth to allow for callus tissue to form and to retard decay. Properly made saw cuts at the laterals, where the lateral is at least one third (1/3) the size of the branch or leader removed, reduce the number and vigor of re-growth sprouts through the trees natural growth mechanisms. ("Natural Pruning").

e. In general, tree paint is not required. In specific instances state or municipal authorities may require tree paint. In such instances growth retardant paint should be used. Asphalt based tree paints shall not be used as they promote growth of certain rot fungi.

f. Remove raised sucker clusters at parent limb and remove undesirable limbs that have been stubbed off and have formed accumulated sucker clusters.

g. Directional prune so that growth will be away from wires.

h. Lighten overhanging (within 10' of trimmed zone) or adjacent leaders and branches and shorten evergreens overhanging conductors to prevent limbs touching or breaking off and falling on lines in severe storms.

i. Remove leaders and limbs that are a hazard to lines due to death, decay, weak configuration and split or weak crotches.

4. Only appropriate tree tools in good working condition shall be used.
5. Climbing irons shall not be used in any tree unless the tree is to be removed.
6. All severed limbs and branches (hangers) shall be removed from trees after pruning.

Guidelines for tree removal.

1. Unless previous arrangement has been made with the Company Representative, trees that are a hazard to the lines shall be removed; i.e. any tree which by the nature of its health, size or condition endangers the line.
2. Defective or diseased trees shall be removed whenever possible.
3. Fast growing and weed trees shall be removed as undesirable species, whenever possible.
4. Trees shall be felled away from conductors.

5. In areas where damage might be caused to conductors or property, trees shall be stripped of all limbs with the trunk removed in sections, as necessary.
6. All brush shall be removed daily from public thoroughfares and other improved places unless otherwise arranged with the Company Representative.
7. All stumps shall be cut flush and parallel to the ground. Tree stumps shall not exceed a maximum height of three (3) inches. All brush shall be cut flush and parallel to the ground.
8. Wood and brush (cribbing) shall be used as a cushion to protect from potential damage due to felling trees or heavy limb sections. The probability of a bouncing effect is normally increased when using cribbing and should be allowed for.
9. All vines shall be cleared from conductors to minimum clearance standard. Additionally vines shall be severed at base to a distance of 10' on structures to insure growth dies.
10. Prioritization of Pruning – Distribution pruning should be performed on a circuit basis whenever possible. Always start pruning from the substation out, as this area is of greatest importance due to the large number of customers affected by outages caused in this area.
11. Three-phase lines should have greater clearance and attention than single-phase spur lines. Pruning is performed to protect the largest number of customers from an interruption. Three-phase interruptions will affect more customers.

Safety – Good Relations – Clean-up

1. The contractor will take all safety and protective precautions and with respect thereto will strictly enforce all applicable regulations of Municipal, State and Federal Laws, the various insurers and the Company. These shall include OSHA and ANSI Z133.1.
2. A neat appearance, pleasant approach and a clear explanation as to what you mean or want when contacting people. In any instance where there is a misunderstanding or a possible cause for trouble with a customer or municipal official, notify the Company Representative, so that proper action can be taken. When a property owner or municipal official absolutely will not allow proper pruning refer the situation to the Company Representative in writing. If pruning in a given area is under dispute – move to another area.
3. Utility Company Relations – Tree crew to contact the Company every day and report work location; details of who to report to, when and where will be specified by the local Company Representative.

4. Outage – Whenever there is a question of a possible accidental outage of power caused by a tree crew, the Company is to be notified immediately.
5. Municipal Regulations – Notify the proper municipal official (Tree Warden, etc.) as required and let them know what location you are working in. Get permission to do tree work on municipal trees from the proper authority before doing the work.
6. State Regulations – When doing tree work on a State Highway have a copy of the State Tree Pruning Permit with Permit Number. All tree work on State Highways must be approved and supervised by the proper State Official. State regulations on barricades and warning signs must be observed.
7. Dispose of all debris properly and leave the work area in a neat and clean condition. Unless otherwise specified, wood shall be left for property owner. All trucks will have leaf blowers to clear roadway areas.

Contractor Responsibility

1. "The relationship of the Company and the Contractor is acknowledged to be that of owner and independent contractor. The means and methods employed for performing the details of pruning shall be the responsibility of the Contractor, subject to the suggestions and approvals of the Company's designated representative."
2. Compliance with Laws and Regulations – The Contractor shall comply with all applicable laws and regulations and all work and materials are to comply in every respect with all applicable codes, laws and regulations. All necessary permits, licenses, etc., for the Work unless obtained by the Company are to be obtained and paid for by the Contractor, the Company to reimburse the Contractor for the cost thereof unless the Work is being done on a fixed fee basis.
3. Instructions to Contractor – Pruning work includes the furnishing of all supervision, labor, equipment, tools and services necessary to trim trees in designated areas and in a manner acceptable to local or state authorities and Company Representative, per the Pruning Contract/Purchase Order. The Contractor will report daily in writing to the Company Representative any damaged Company equipment (insulators, crossarms, etc.) encountered in the course of his work.
4. All crews are required to attend a yearly review of NSTAR Pruning Policy at the expense of the contractor

Other Related Items

1. Privately Owned Facilities – The Company in general will not authorize pruning of privately owned facilities.

2. Contractor List – Owners of private electrical facilities may occasionally ask for recommendations concerning private contractors for line maintenance or pruning work. The Company position is not to make recommendation of any specific contractor for reasons of liability.

3. Refusal to Allow Pruning – When the pruning contractor reports a refusal to allow pruning, the Company Representative shall contact the involved party in an effort to secure the proper pruning. If no agreement can be reached the refusing party shall be contacted via registered mail (Return Receipt Requested)

4. The letter will relate our reasons for pruning i.e. protection of our facilities, reliability of service, protection of the public (tree climbers) and serve as documentation of our attempt to secure adequate pruning. Hopefully this letter will prompt some to reconsider their refusal. If not, we will have documentation of our intent and attempt to secure adequate pruning.

5. Documentation of Tree Removal – When, due to diseased or dead state, ornamental or large shade trees are by necessity removed, documentation in the form of detailed notes and/or photographs should be kept. This documentation may be valuable in the event a customer later brings a claim against the Company for the value of a tree claiming "wrongful removal".

Methods of Pruning

There are many methods of pruning trees for line clearance, but not all methods are attractive or advantageous to the tree, nor are all methods effective for long-term line clearance. The basic

pruning methods are pollarding, sharing or rounding over and natural pruning (Fig.3)

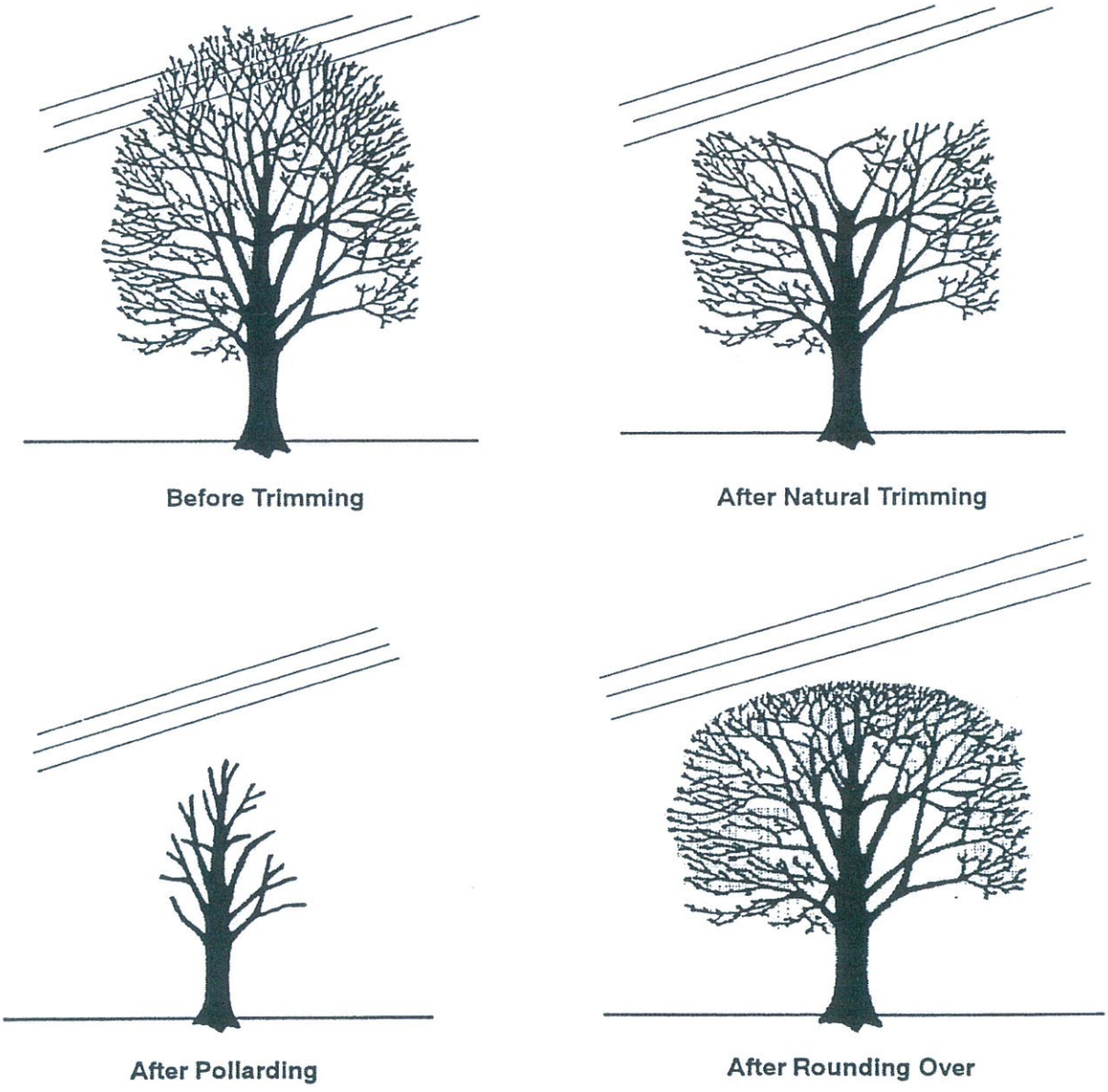


Figure 3. Basic Trimming Methods

Stubbing off major limbs by pollarding is not a desirable pruning practice. The result is not only unsightly, but multitudes of fast-growing suckers sprout from the stubs and soon result in line clearance problems more serious than before. The stubs are also likely to fall victim to decay or disease. Finally, this method of pruning attracts unfavorable public attention.

Shearing or Rounding Over consists of making many small cuts so that the treetop is sheared in a uniform line. This results in rapid re-growth of many small sprouts, called suckers, directly toward the conductors. Because of this rapid re-growth of suckers, trees trimmed by the rounding over method need to be re-trimmed sooner than trees trimmed by the natural pruning period.

Natural Pruning is the method recommended by most professionals. Natural pruning is cutting branches flush at a suitable parent limb, back toward the center of the tree. This method of pruning is sometimes called "drop crutching" or "lateral pruning". An attempt is made to remove large branches to laterals at least one-third the diameter of the branch being removed. All cuts should be flush to avoid leaving stubs. Natural pruning is especially adapted to the topping of large trees where a great deal of wood must be removed. In natural pruning, most cuts are made on larger limbs with a saw, and little pole prune work is required. The results are natural-looking trees, even if large amounts of wood have been removed. Natural pruning is also directional pruning, since it tends to guide the growth of the tree away from the wires (Figure 4). Stubbing, on the other hand, tends to promote rapid sucker growth right back into the conductors.

It should be emphasized that natural clearance is highly effective in reducing future costs, and that two or three natural pruning cycles will produce an ideal situation for both the utility and the tree owner. Most shade trees lend themselves easily to this type of pruning. Elm, Norway Maple, Red Oak, Red Maple, Sugar Maple, Silver Maple and European Linden, the most common street trees, react especially well to natural pruning methods.

Crown Reduction is cutting back portions of the upper crown of a tree. Reducing is indicated when a tree is located directly beneath a line. The main leader of leaders are cut back to a lateral, which should be at least one-third the diameter of the limb being removed. Most cuts should be made with a saw. A pole pruner is used only to cut

lateral branches. To minimize re-growth, no more than one-fourth of the crown should be removed when topping (Figure 5).

Side Pruning is cutting back or removing side branches that threaten the conductors. Side pruning is required where trees are growing adjacent to utility lines. Limbs should be removed at a lateral branch. Notches in tree crowns should be avoided, if possible. Shortening branches above and below the indented area, or balancing the opposite side if the crown, will usually improve the appearance of the tree. When pruning, all dead branches over the wires must be removed, since this dead wood could easily break off and cause an interruption in service. (Figure 5)

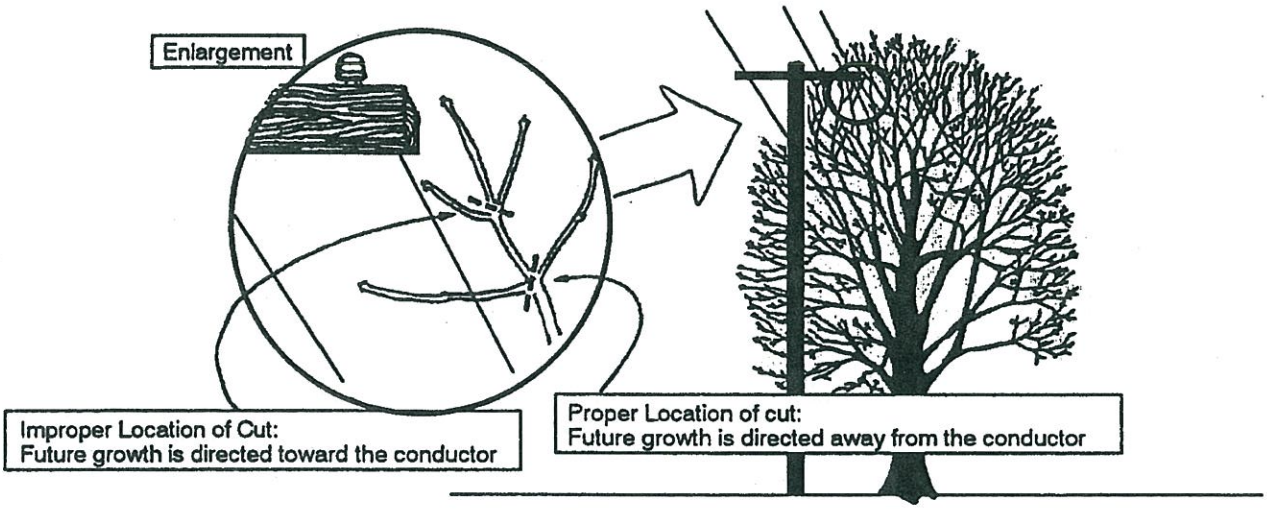


Figure 4. Natural Trimming (to direct growth away from wires)

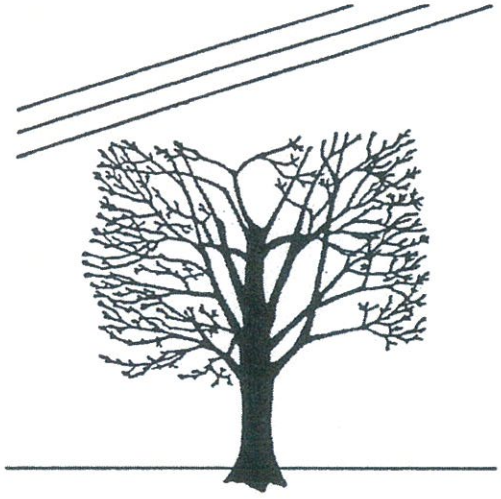
Side Trimming is cutting back or removing side branches that threaten the conductors. Side trimming is required where trees are growing adjacent to utility lines. Limbs should be removed at a lateral branch. Notches in tree crowns should be avoided, if possible. Shortening branches above and below the indented area, or balancing the opposite side of the crown, will usually improve the appearance of the tree. When trimming, all dead branches over the wires must be removed, since this dead wood could easily break off and cause an interruption in service (Figure 5).

Overhang Or Under Pruning consists of removing limbs beneath the tree crown to allow wires to pass below the tree crown. This type of pruning will allow the tree to retain its natural shape and continue its normal growth. Overhangs are hazards when lines pass beneath a tree and should be removed according to the species of the tree, location and the general policy of the utility. When pruning, all dead branches above the wires are removed, since this dead wood could easily break off and cause an interruption. Many utilities have a set removal program for trees that overhang important lines (Figure 5).

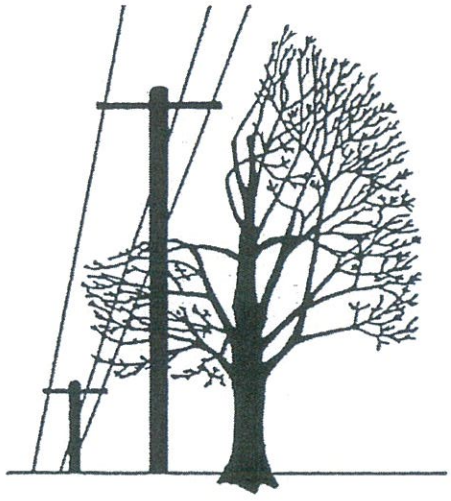
Through Pruning is the removal of branches within the crown to allow lines to pass through the tree. It is best suited for secondaries, streetlight circuits, and cables, although it is often used on primary circuits where there is no other way of pruning the tree. Cuts should be made at crotches to encourage growth away from the lines (Figure 5).

Combinations - It is often necessary to combine several types of pruning in order to maintain acceptable tree appearance and provide adequate clearances.

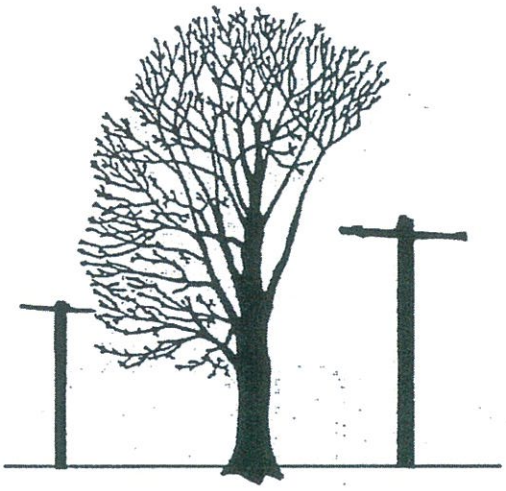
METHODS OF TRIMMING (con't)



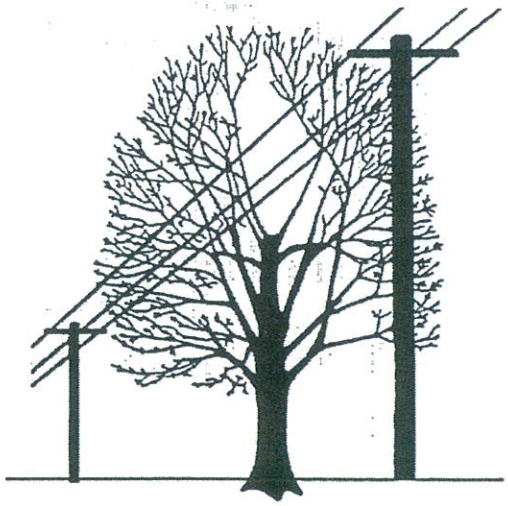
After Top Trimming



After Side Trimming



After Under Trimming



After Through Trimming

Figure 5. Four types of natural trimming.

ANSI A300 " American Standard for Tree Care Operations – Tree, Shrub and Other Woody Plant Maintenance – Standard Practices", presents performance standards for the care and maintenance of trees and should be considered a part of this appendix and adhered to in tree operations under this policy.

Techniques

Proper clearance for any type of overhead line is measured not only in feet of clearance but in effectiveness. Both tree and overhead line characteristics must be known to get the maximum effective clearance for each tree. Clearance not only must be adequate when the tree is trimmed but must last. Therefore, each tree should be trimmed so it will need less work at the next trim cycle.

Before tree trimmers begin work, they plan how they are going to trim each tree. Consideration is given to how and when a tree is going to re-grow after it is trimmed. Trees can usually be placed into one of four tree-form types: upright, spreading, horizontal or columnar (Figure 6). If possible, the natural form of the tree should be maintained so that it does not look heavily trimmed.

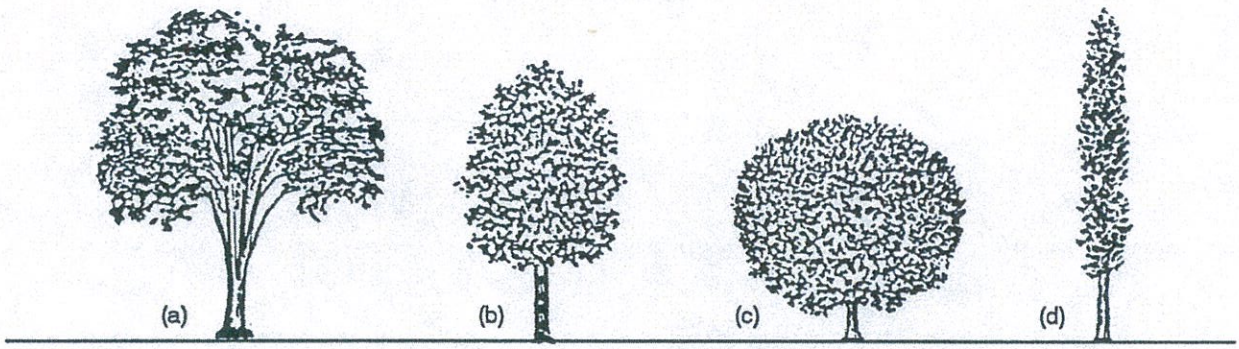


Figure 6 Tree-form types that are basic in planning and maintaining clearnace for overhead lines: (a) upright, (b) spreading, (c) horizontal and (d) columnar.

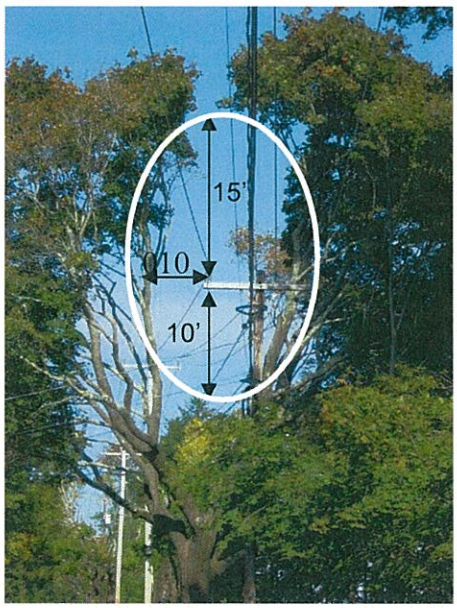
All line clearance tree pruning should be done in accordance with the American National Standard Safety Requirements for Pruning, Repairing, Maintaining and Removing Trees, and for Cutting Brush" (ANSI Z133.1). The ANSI Z133 standard provides safety criteria for line clearance tree trimmers and the public. Minimum working distances from energized conductors are listed and must always be observed.

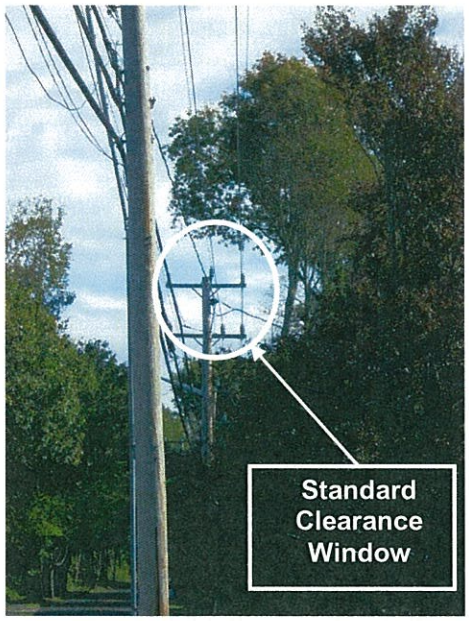
Types of Distribution Vegetation Clearance Standards

The line clearances below are based on circuit performance. Average program trimming will be based on the "Type 1" standard. Type 2 and 3 will be used on lower performing circuits in the top 5%. Type 4 will be used on distribution rights-of-way. The goal is to significantly reduce and/or eliminated potential vegetation / wire & equipment conflicts. The contactor is expected to identify and remove potential risks outside the minimum vegetation free area listed below. These conflicts are leaders and limbs that are hazards to lines due to death, decay, weak configuration and split or weak crotches that exist outside the vegetation free area listed above.

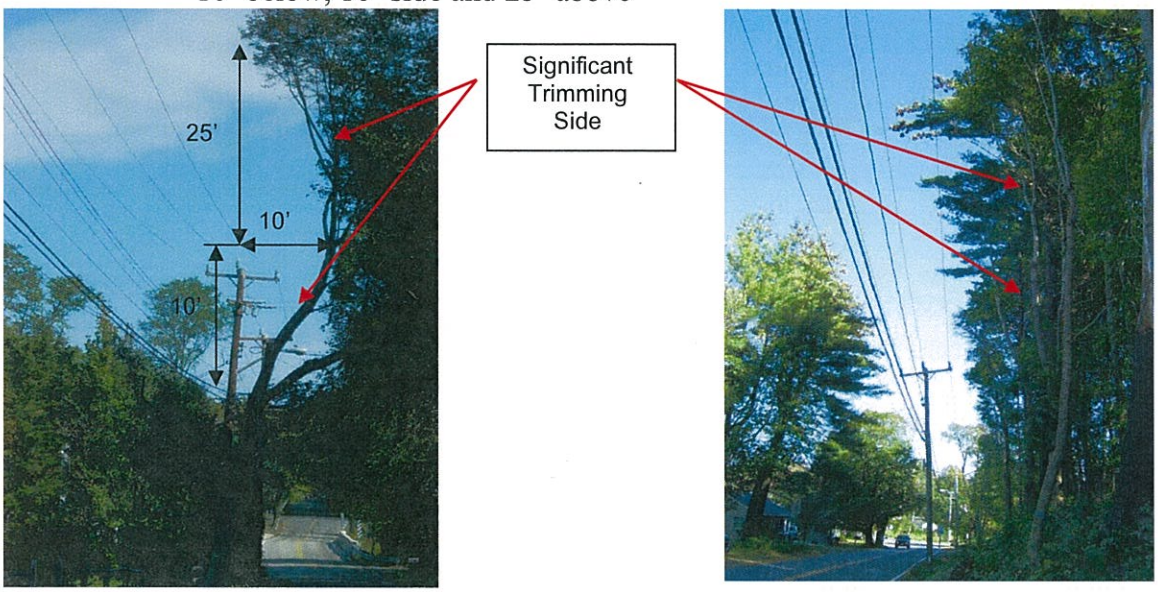
* Type 1 and 2 standards also require **ALL** conifer leaders and limbs above the wire zone to be removed and properly cut back. This applies to vegetation above the minimum standards listed below. This will reduce and/or eliminate outages caused by snow and ice loads on tree limbs.

Type 1 Standard Vegetation Clearances – clearances from wires and equipment 10' below, 10' side and 15' above

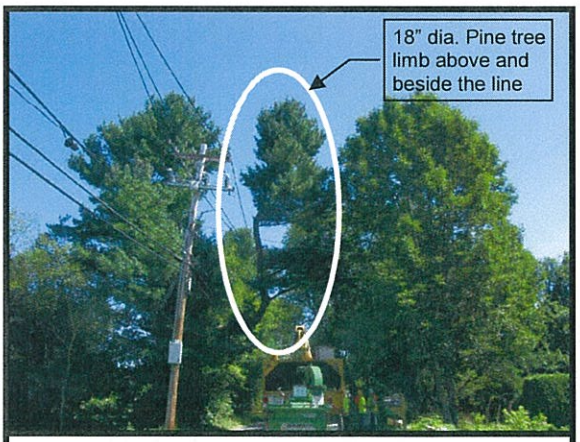




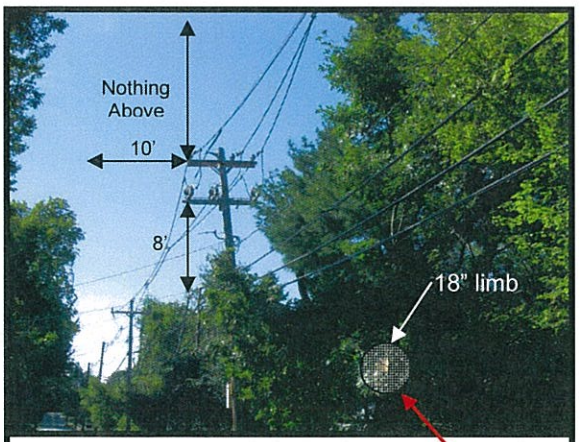
Type 2 Enhanced Vegetation Clearances - clearances from wires and equipment 10' below, 10' side and 25' above



Type 3 – Eliminate Overhanging Vegetation -clearances from wires and equipment 10' below, 10' side and 25' above



Circuit 102 Chipaway Road, Freetown

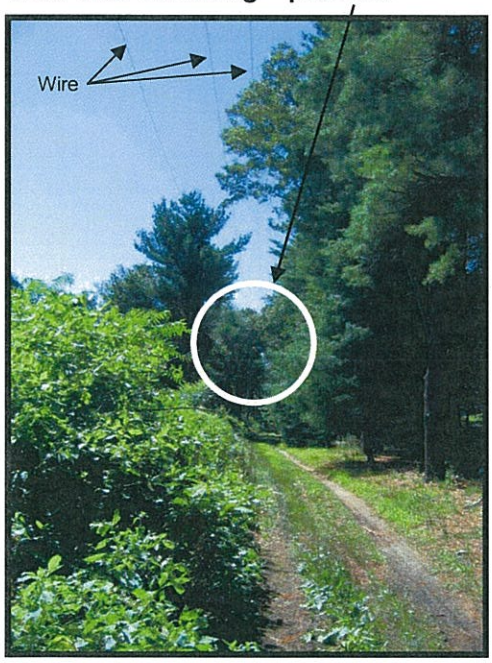


Circuit 102 Chipaway Road, Freetown

Type 4 - "Ground to Sky" eliminate vegetation, above and below the wires and equipment 10' side.

"Representative of Ground to Sky"

Note side overhang – pole not



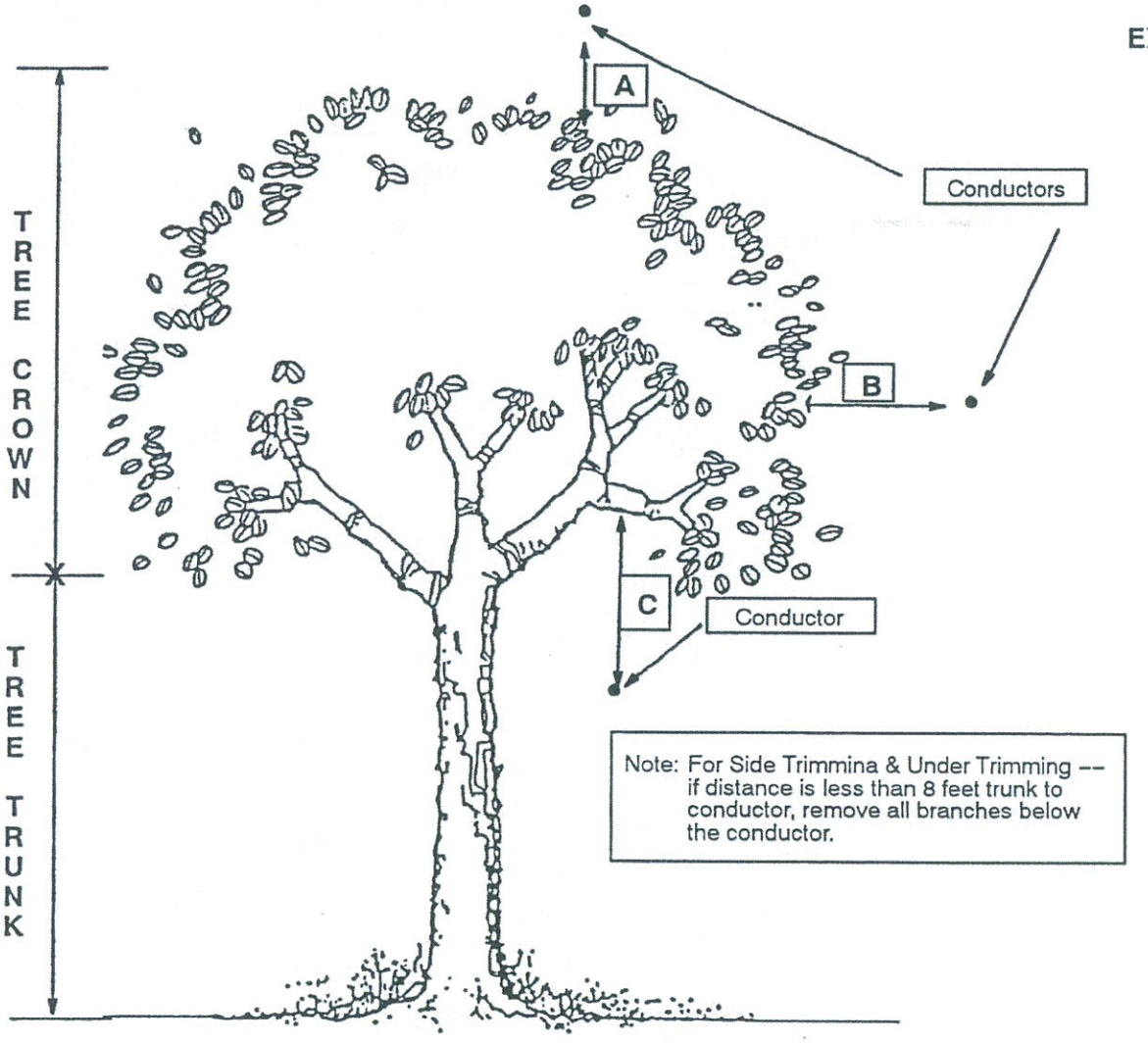
Pinehurst Rd - BEFORE

Note side clearance – "ground to sky"

Pinehurst Rd - After

Distribution Line

EXHIBIT 1



Note: Our objective is to obtain trim clearances as indicated. However, extenuating circumstances may dictate that lesser clearnaces be accepted.

CLEARANCE	TYPE OF TRIMMING	MINIMUM CLEARANCE FOR 25 kV OR BELOW *
"A"	Topping	8 Feet
"B"	Side Trimming	8 Feet
"C"	Under Trimming (Remove overhang situations where possible)	12 Feet **

* Services should be trimmed only to avoid contact.
** Thin, lighten, or shorten limbs above this point on pines to prevent snow loading.

Secondary electric lines shall be cleared for a minimum clearance of three feet.